

## **ADVANCED INTEGRATED ELECTRONIC WARFARE SYSTEM (AIEWS) AN/SLY-2(V)**



The AN/SLY-2(V) Advanced Integrated Electronic Warfare System (AIEWS) is the Navy's next generation shipboard electronic warfare system planned for use with the Aegis Combat System and Ship Self Defense System Mark 2. It is a total replacement for the AN/SLQ-32(V) system. Increment 1 of AIEWS will include the capability to detect and identify radio frequency (RF) emissions, provide precision angle of arrival information to cue hard-kill fire control system sensors, and launch self-protection decoy devices. Shown in the photograph is a demonstration antenna used during at-sea engineering tests. Integration of Increment 1 with the ship command and decision system will support other sensor cueing and combat identification. Increment 2 will include additional capability.

### **BACKGROUND INFORMATION**

The Navy approved the ORD in April 1997. The initial TEMP was received by OSD in March 1998 and was returned without approval because of the fundamental disconnect between the program structure (as agreed to by the PEO in November 1997) and the program structure reflected in the language of the Milestone II ADM. This was somewhat redressed in FY01 when the OPEVAL was delayed so it could be conducted in an Aegis destroyer with AIEWS more integrated with the combat system.

AIEWS development is behind schedule and the initial installation will still not be fully integrated with the host combat system. For initial installations, AIEWS will use the same interfaces as the system it will replace, the AN/SLQ-32(V) electronic warfare system. As a result of this limited integration, some of the improved capability required of AIEWS cannot be fully used to benefit the combat system. For example, the improved precision angle-of-arrival information will not be available to cue hard-kill fire control system sensors. The program was rebaselined in FY01 as a result of cost and schedule breaches.

### **TEST & EVALUATION ACTIVITY**

This Naval Air Warfare Center, Weapons Division, Point Mugu, CA, integrated and tested an anti-ship cruise missile (ASCM) seeker with an existing target drone to provide a test asset that would partially address inadequacies of proposed ASCM simulators. In December 2000, two BQM-34S drones,

configured with ASCM seekers, were flown to demonstrate operation of the seekers at ASCM-representative speeds and altitudes; collection of seeker data as it detected, acquired, and tracked a surface target; and safe recovery of the seekers. The only objective that was not completely achieved was that the low altitude required was never achieved. Post-flight analysis has indicated the likely cause, and it is projected that this will not be a problem in the future. This demonstration project was conducted under the Target Management Initiative program under the auspices of DOT&E.

## **TEST & EVALUATION ASSESSMENT**

There are no test results of sufficient scope on which a performance assessment can be based. The Increment 1 T&E program will examine critical operational effectiveness issues, including situation awareness (the effective and accurate detection, track, and identification of radio frequency emitters); engagement support (effective employment of decoys against anti-ship cruise missiles); tactics; and survivability. In addition, the T&E program will address the full spectrum of critical operational suitability issues: reliability, maintainability, availability, logistic supportability, training, and safety.

As noted below, as of this writing, the following significant issues with the overall T&E program remain:

- **ORD Deficiency.** The ORD is deficient in the following regard: (1) Although the ORD asserts that it will “support the evolutionary development of capabilities to meet the operational requirements,” it is ambiguous with regard to what initial functionality is required, and the schedule for delivering additional capabilities; (2) The currently proposed AIEWS/Aegis interface for OPEVAL significantly deprives the combat system of the improvements brought by AIEWS. It is noted that such a limited level of integration with the existing electronic warfare system, intended to be replaced by AIEWS, is described in the ORD as the major contributor to “shortcomings of existing system;” and (3) Going to OPEVAL with the proposed level of integration will require additional measures of effectiveness, with thresholds.
- **Realistic Simulation of Anti-Ship Cruise Missiles.** Increment 1 OT requires a platform, with appropriate radar cross section, that can carry anti-ship cruise missile active radar seekers or acceptable seeker simulators at threat-representative speeds and altitudes. The legacy platform, identified up front by the OT community as not meeting the requirement, uses a large, slow aircraft that cannot descend to threat-representative altitudes. The use of an existing target drone, integrated with an anti-ship cruise missile active radar seeker, appears to be an acceptable solution, but now adequate numbers of these drones will have to be funded for OT. For Increment 2, threat ASCMs or acceptable surrogates will be required.
- **Realistic Background Emitter Density.** As of this writing, the test range for the OT&E of AIEWS Increment 1 has not been identified. Whichever sea range is selected, the RF emitter resources for that range will have to be funded to ensure that a realistic background density of RF emitters exists for the testing.
- **Self Defense Test Ship (SDTS) for AIEWS Increment 2.** It is expected that anti-ship cruise missiles or very high fidelity surrogates will be required for OT&E. This will necessitate a follow-on SDTS in order to simulate threat-representative anti-ship cruise missile profiles and conduct safe testing.